EERE Print-to-Web White Paper

July 10, 2014

Introduction

EERE generates hundreds of fact sheets, brochures, booklets, and reports each year. The purpose of this white paper is to provide options for producing documents in a digital format as a complement to, or instead of, traditional printing.

Historically, offices have systematically posted these documents on the EERE website using a Portable Document Format (PDF). And while EERE has standards that optimize its PDFs for commercial search engines, which makes them easier to find, it is time to revisit this approach and take into account other options for creating content that is available on the Web.

Current problems with the PDF-only approach include:

1. As of December 2013, there are approximately 26,000 PDFs posted across the EERE website. Creating Web pages for each PDF in the new Energy.gov platform will be expensive.

2. PDFs often contain the same content as Web pages; therefore, they can duplicate or greatly increase the number of search engine results.

3. PDFs may not provide the best user experience (UX).

4. While PDFs should comply with Section 508 accessibility requirements, they often do not because of the expense. So, many PDFs on EERE's site are not fully accessible for the visually impaired.

5. Printing and storing hard copies of outreach documents is expensive.

6. EERE is not benefitting from current digital publishing practices.

Existing Products and Digital Alternatives

Fact Sheet

A one- or two-page document in a template format that is typically text-heavy with one or a few photos or graphics.
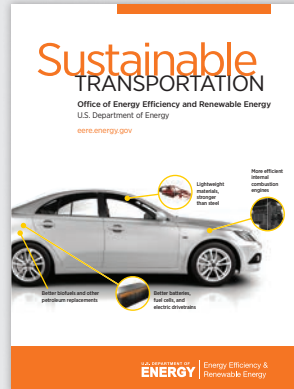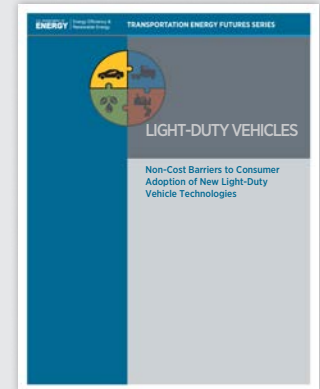
Brochure

A publication that is more than two pages long and is typically heavily designed.

Booklet

A small book.

Technical Report

A document that presents results obtained from a scientific, analytical, or technical activity or investigation.

PDF

A file format that allows a document to be shared among several types of computers and printed without losing its formatting.

Interactive PDF

A PDF that includes interactive features such as video, internal windows, hyperlinks, audio, and text-entry fields.

E-Book

A text- and image-based publication composed in or converted to digital format for display on a computer screen or mobile device.

App

A self-contained program that requires a separate software download to be viewed. It is not viewable on a website.

Web Page

A page of a website that maintains the same look and feel as its parent website.

HTML5 Responsive Website

A website created using HTML and CSS that dynamically resizes the website content to fit the user's browser or device size.

Digital Alternative Comparison

Category	PDF	Interactive PDF	E-book	App	Web page	HTML5 website
Appropriate content types	Fact sheet, brochure, booklet, report	Fact sheet, brochure, booklet, report	Booklet, report, brochure	Brochure	Fact sheet	Brochure
Audience	Consumer, federal/stakeholder, industry	Consumer, federal/stakeholder, industry	Consumer	Consumer, industry	Consumer, federal/stakeholder, industry	Consumer, federal/stakeholder, industry
Pros	• Simple to produce • Easily shared • Maintains the appearance of a print document • Easy to print-on-demand • Content does not need to be rewritten • Can be accessible	• Moderate effort to produce • Easily shared • Content does not need to be rewritten • Can be accessible, but more difficult than regular PDF	• Reader has control over font size and style for personalized reading experience • Dynamic content fits different screen sizes of mobile devices • Small file size • Content does not need to be rewritten • GPO can format and distribute content • Accessible	• Full control over the look of your pages • Replicate InDesign layout • Single or dual orientation • Multiple screen sizes—iPad, iPhone, Kindle, Nook • Touch screen-friendly interactive elements • Can be made accessible	• Does not duplicate content • Accessible	• Responsive • Flexible • Many options for interactivity • Can be packaged into an app • Can make it look like an app with no distribution concerns • Touch screen capabilities • Ease of maintenance • Accessible
Cons	• Non-responsive • Fixed layout • Viewer has to zoom in/out, scroll around to see content	• Non-responsive • Fixed layout • Interactive features are inconsistent in mobile readers • Viewer has to zoom in/out, scroll around to see content • Cannot print designed hard copies	• Best for text only* • Difficult to replicate page design* • Limited interactivity • Complex to build (coding required for design) • Follow strict specifications (to be accepted into online stores) • Displays differently on each e-reader • Little control over layout • Cannot print designed hard copies	• Must go through online app store to get file • Not viewable on desktop • Large file size (100+ MB)—long download time and takes up space on mobile device • Content must be rewritten for the Web • Cannot print designed hard copies • Device dependent	• Content cannot be highly designed • Content must be rewritten for the Web • Cannot print designed hard copies	• Start over with new design—can't preserve InDesign layout since this will be coded • Not effective for text-heavy projects • Content must be rewritten for the Web • Cannot print designed hard copies
Optimal platform	Desktop, tablet, print	Desktop, tablet	Mobile device, tablet, e-reader	Mobile device, tablet	Desktop	Desktop, mobile device, tablet
Potential distribution	Web, email, print-on-demand	Web, email	Online bookstores, academic channels, GPO distribution	App stores	Web	Web
Cost (relative)	Low	Low/medium	Low/medium	High	Low	Medium/high
Design level	Can be highly designed	Can be highly designed	Cannot be highly designed*	Can be highly designed	Cannot be highly designed beyond template	Can be highly designed
Max amount of content	High	High	High	Low/medium	Low	Medium

*Only true of ePub 2 not ePub 3

Summary

When deciding on the best solution for the digital component of a print product, it is important to consider the top priorities for the product, as well as whether the content has previously been created for print or is still in draft form. If a product has already been created for print, in order to recreate it for a Web solution such as an app, Web page, or HTML5 responsive website, the content will have to be reworked for the new medium. No content cutting or rewriting is needed for a PDF, interactive PDF, or e-book.

If a program or office needs to post a product that its audience can easily print, the only appropriate option discussed in this paper would be a plain PDF. The other options, while they may be printable, would not retain a professional-quality look and feel if they are printed. In addition, some elements of these other options, such as interactivity, would not transfer to the printed page.

Digital distribution is an advantage to producing non-printable options for products. E-books can be accessible to anyone with an e-reader or an e-reader app, and the Government Printing Office's (GPO's) digital distribution options streamline the promotion of content in this format. With options such as an HTML5 website or a Web page on an existing site, the content is available via a simple click, with no download time or need for a software program. Apps can make content both interactive and broadly available on mobile devices and tablets.

The table at the end of this paper, "Detailed Digital Alternative Comparison," specifies which technical features and interactivity are available with each product option. This chart is meant to be reviewed with a designer and/or developer during the creation of a product.

As the world of content creation and distribution is constantly changing, we would like to revisit this topic later in Fiscal Year 2014 to take another look at the options available and the pros and cons of each.

Additional Details

PDFs and Usability

PDF documents, as well as interactive PDF documents, are easy to create from a printed product version and place on websites. Creating a PDF to post online requires a minimal amount of work after the print product is designed. However, HowTo.gov advises that HTML and XML are the formats that provide the most flexibility to users on the Web, and they should be used for primary content whenever possible.[1] Users can view text in a way that is optimized for a browser, the text is accessible, and the content can be printed if necessary. PDFs are not as versatile, and they sometimes suffer in popularity when compared to HTML Web pages because of this lack of flexibility. A case study about an Australian government website states that "Our users were telling us they wanted to do things in a different way, and when we converted a few PDFs to Web pages we found the Web pages outperformed PDFs by as much as 160 to one."[2] A recent article explaining the release of the 2013 Information Sharing Environment Annual Report to the Congress in both PDF and HTML formats had the same findings; the HTML site had significantly higher traffic than the PDF downloads.[3] The team was also able to collect better stats and optimize the content for search. By placing content in a user-friendly format, a site can increase the popularity of this content and provide ease of access at the same time.

Knowing whether EERE has customers who will want to print out these documents is important to consider when deciding whether or not to use PDFs. As an article about digital publishing in *UX Magazine* says, "In a digital landscape, our role is to provide the best UX possible to our customers. And to do that well, we need to know our customers very well. To know what they read, how they read, where they read."[4] HowTo.gov instructs government agencies to "Use PDFs…only as an alternate format to industry standard formats and when there is a

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[1] "Using Appropriate File Formats." (2013). HowTo.gov. Accessed Oct. 25, 2013: www.howto.gov/web-content/accessibility/file-formats.

[2] "Case study: Unlock valuable content trapped in PDFs." (2012). briarbird. Accessed Oct. 25, 2013: http://briarbird.com/archives/564/.

[3] "Step away from the PDFs!" (2013). Blog.HowTo.gov. Accessed December 9, 2013: http://blog.howto.gov/2013/12/06/step-away-from-the-pdfs/.

[4] Sandusky, B. (2011). "Portraits of an Industry in Flux: Digital Publishing and UX." UX Magazine. Accessed Oct. 25, 2013: http://uxmag.com/articles/portraits-of-an-industry-in-flux.

clear business need to use this format...For example,...it is likely that readers prefer to print out the document for reading later rather than read the text on the screen."[5] So, even if a product is not originally distributed via a print document, but is likely to be printed a lot by users later, a PDF may be a good option. However, UX regarding PDFs is not typically considered. For example, users aren't surveyed about PDF use—including whether they like them or not, etc.—on a website, and PDFs aren't tested for usability on the Web, either through a browser or on a mobile device.

Print-on-Demand

Print-on-demand is a method of printing in which print orders are received and filled individually using ready-to-print files. These copies are printed only after an order has been received, which means that products can be printed one at a time. This is an alternative to batch printing, in which a set number of documents are printed in advance of a specific need. It also allows a large inventory of content to be available without having to maintain a physical inventory with its additional capital and warehousing costs.

In FY13, there were 49 print-on-demand requests from EERE, which were fulfilled by the National Renewable Energy Laboratory's (NREL's) copy center. This included 29 fact sheets, 10 brochures, 6 books, and 4 newsletters. The number of documents printed for each request ranges from 5 to 1,250, with an average of 127.

We understand that Bill Martin of the EERE Information Center also fulfills print-on-demand requests for EERE.

HTML5 Responsive Websites

A responsive HTML5 website is an alternative to print products that is viewable on all browsers and devices, can include nearly limitless interactivity, and provides ease of maintenance. The options and flexibility are dependent only on budget. HTML5 websites work best with a low to medium amount of content and a lot of graphical elements and images to keep the user interested while clicking through the site. This approach would not work for a technical report without significantly cutting content, as well as adding and formatting images and graphics, but it is a strong option for brochures that have already-integrated graphic elements.

Single-Page Websites

A single-page website is an HTML5 website that has simple navigation that allows the user to browse the site information simply by scrolling down the page, or by clicking on buttons that scroll down the page to certain sections. Single-page websites are attractive to users and work very well with graphics and charts, and they are relatively easy to maintain. They favor a flat content hierarchy, minimal navigation, and eye-catching graphical elements. Single-page websites do not work well with a lot of text, and they are time-intensive to design and conceptualize. This approach would work well for creating a digital version of a graphic-heavy fact sheet or a short brochure. A single-page website is best used to tell a short, linear narrative.

Two examples of single-page websites are **www.evoenergy.co.uk/uk-energy-guide/** and **www.digitized.gr/**.

GPO Formatting and Distribution Services

GPO has a white paper[6] that details recommendations and options for alternative or complementary digital options for traditionally printed documents. GPO has tools to help federal agencies reformat content into digital e-book formats and disseminate this content through online locations such as Google, Barnes&Noble.com, and Apple. GPO also has a variety of promotional tools available to foster interest in sponsored publications. If a product is to be created as an e-book or PDF, GPO's channels could be helpful in streamlining processes and encouraging interest in the materials.

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[6] "Publishing Alternatives for Federal Communication Projects." (2013). U.S. Government Printing Office. Accessed Oct. 22, 2013: www.gpo.gov/pdfs/customers/case_studies/GPO_White_Paper_Publishing_Alternatives.pdf.

[5] "Using Appropriate File Formats." (2013). HowTo.gov. Accessed Oct. 25, 2013: www.howto.gov/web-content/accessibility/file-formats.

Detailed Digital Alternative Comparison

Category	PDF	Interactive PDF	E-book	App	Web page	HTML5 website
Features*						
Accessibility	●	●	●	●	●	●
Analytics			●	●	●	●
File creator	InDesign	InDesign	InDesign, Word, HTML, CSS	InDesign	HTML, CSS, JavaScript	HTML, CSS, JavaScript
Preserve layout appearance	●	●		●		
Printable	●	●		●	●	●
Embed document on any site	●	●			●	●
Social-sharing buttons		●	●	●	●	●
Web host	EERE	EERE	EERE/GPO	Digital publishing co., e.g., Adobe DPS, Mag+, Aquafadas, Yudu	EERE	EERE
Interactivity						
Animations**			●	●	●	●
Audio/video**		●	●	●	●	●
Bookmarks		●				
Buttons		●		●	●	●
Cross-references		●	●			
HTML embedded			●	●	●	●
Hyperlinks		●	●	●	●	●
Liquid layout				●		●
Page transitions		●				
Panorama, pan & zoom, image sequences***				●	●	●
Scrollable frame				●		
Slideshow				●	●	●
Table of contents		●	●			
Widget embedded					●	●

*While these features are technically possible, they may not be recommended in all cases.

**In E-book, only available in ePub 3

***In E-book, zoom is platform dependent